

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
9 September 2005 (09.09.2005)

PCT

(10) International Publication Number
WO 2005/082539 A1

(51) International Patent Classification⁷: **B03C 3/38**,
3/155, 3/00, B01D 19/00, B03C 3/40

(21) International Application Number:
PCT/KR2005/000530

(22) International Filing Date: 25 February 2005 (25.02.2005)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2004-0013535
27 February 2004 (27.02.2004) KR

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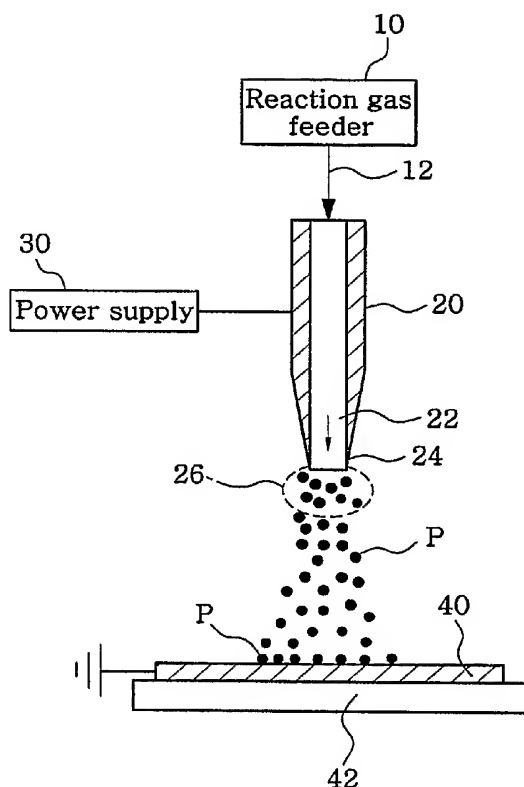
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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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(54) Title: APPARATUS FOR MANUFACTURING ULTRA-FINE PARTICLES USING CORONA DISCHARGE AND METHOD THEREOF



(57) Abstract: The present invention discloses an apparatus and method for manufacturing ultra-fine particles using corona discharge capable of manufacturing the ultra-fine particles nanometers in size from a reaction gas using the corona discharge. In the apparatus for manufacturing ultra-fine particles of the present invention, a reaction gas feeder supplies a nozzle with reaction gas, and the reaction gas is injected. When a power supply applies a high voltage to the nozzle, the corona discharge occurs at the nozzle. Thus, the injected reaction gas is dissolved, and a large number of ultra-fine particles are produced. Then, a collection plate collects the ultra-fine particles. In addition, a duct encloses the nozzle, so that a passage is formed between the nozzle and duct. Sheath gas supplied to the passage of the duct forms a gas curtain between the nozzle and the collection plate, so that the gas curtain leads the flow of the ultra-fine particles. If other reaction gas is supplied to the passage of the duct and heat energy is supplied thereto, the other reaction gas reacts thermochemically, so that a large number of other ultra-fine particles are produced. The ultra-fine particles produced by the corona discharge are coated with the other ultra-fine particles. If the corona discharge is generated while the ultra-fine particles and the other reaction gas are injected by another nozzle positioned downstream of the nozzle, the ultrafine particles are coated with the other ultra-fine particles produced from the other reaction gas.



Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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